

# PATENT SPECIFICATION



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## COMPLETE SPECIFICATION

### Improvements in or relating to Offset Printing Machines

I, ERICH GERICKE, a German citizen, of Flemmingstrasse 14, Berlin-Steglitz, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to offset printing machines in which a sheet fed from a stack to the impression cylinder is seized by a gripper or grippers of a gripping mechanism disposed on the impression cylinder and operative action of a feeler mechanism is prevented by the sheet that has been seized by the gripper. If the grippers fail to seize a sheet the feeler mechanism causes the impression and transfer cylinders to separate and thereby prevents said cylinders from inking each other and thus avoids the next following, properly fed sheet, from receiving a mirrored impression on its reverse side.

In known machines of this kind the feeler mechanism is controlled independently of the gripper mechanism, for instance, by two different cams, rollers or the like. Such cams, rollers or the like, are rather expensive to make and greatly increase the cost of the machine.

It is therefore an object of the present invention to control the gripping mechanism through the feeler mechanism and thus dispense with the need of providing special control mechanisms such as cams, rollers or the like, for controlling the gripping mechanism.

According to the present invention there is provided a feeler mechanism comprising feeler fingers, a feeler shaft, and a feeler lever, said mechanism having means for engaging the gripping mechanism which comprises a gripper and a gripper shaft, in such manner that the said means engage the gripping mechanism when the feeler fingers open and free the gripping mechanism for seizing a sheet as the feeler fingers close.

The invention is based on the principle that part of the movement of the feeler mechanism

can be used to control the movement of the gripper. This is effected according to the invention by the provision of means which permit a substantial simplification in design, eliminates the cause of many faults, and avoids the need of special lubricating points. If, as is already known, the feeler fingers and the gripper are disposed on separate shafts, the gripper shaft may be provided with a lever for engagement by a pin on the feeler actuating mechanism which comprises a feeler lever and a feeler cam.

The feeler fingers and gripper may be mounted on a common shaft, the gripper being loose on the shaft and capable of being moved into gripping position by the action of a spring, whereas the feeler fingers are secured to the shaft.

Two illustrative forms of construction will be more particularly described with reference to the accompanying drawings, in which:—

Fig. 1 is a side-view of the impression cylinder and of a cam for the feeler mechanism,

Fig. 2 is a plan view thereof,

Fig. 3 illustrates another embodiment of the invention in which feeler fingers and gripper are mounted on a common shaft,

Fig. 4 is a plan view thereof,

Fig. 5 illustrates the gripper in section,

Fig. 6 illustrates one of the feeler fingers in section, and

Fig. 7 illustrates the manner in which the grippers are mounted on the shaft in the embodiment of Fig. 3.

In the embodiment shown in Figs. 1 and 2 the gripper mechanism comprises a gripper shaft 2 having a gripper 1 mounted thereon. The gripper is normally held in position by a spring 10.

The feeler mechanism comprises feeler fingers 4 secured to a feeler shaft 5 having a feeler lever 6 mounted thereon. The feeler mechanism is normally held in position by a spring 11. The lever arm 6 carries a roller 12 which bears against a fixed cam 8.

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To effect a substantial structural simplification, and thereby to eliminate possible sources of faults, and to avoid the need of special lubricating points, part of the movement of the feeler fingers 4 is used, according to the present invention, to operate the gripper 1.

To this end, the invention provides engaging means 7 on the feeler mechanism comprising the feeler fingers 4, the feeler shaft 5, and the feeler lever 6, the said means causing the engagement of the spring-loaded gripping mechanism by the feeler mechanism when the feeler fingers 4 open, the gripping mechanism comprising the gripper 1 and the gripper shaft 2 being released so that the gripper can seize a sheet when the feeler fingers close.

The gripper shaft 2 is provided with a lever 3 which is engaged by a pin 7 on the feeler lever 6.

In the embodiment shown in Figs. 3-7, the feeler fingers 4 and the gripper 1 are mounted on a common shaft 9. In this case the gripper 1 can be pivotally rotated on the shaft 9 by means of two springs 10 disposed on either side of the gripper so as to urge the gripper to seize the paper, the springs being attached at one end to pins 13 on the gripper 1 and at the other end to pins 15 on the impression cylinder 14, whereas the feeler fingers 4 are secured to the shaft 9. In Fig. 7 the manner in which the shaft 9 is mounted is shown when viewed in the direction indicated by the arrow in Fig. 3. In this construction the gripper 1 is mounted rotatably on the shaft 9 and are maintained closed at the point 13 by the springs 10 which are connected at the point 15 with the cylinder. The feelers 4 are also mounted on the shaft 9 but are rigidly connected with it. The shaft 9 carries at the end of the cylinder the lever 16 which in turn runs with its roller 12 on the cam 8. The cam 8 now brings about the opening and closing of the feelers. Since, now, the gripper 1 is slitted fork-like, and a cam 17 is located in this recess ("cut-out") on the feeler shaft, which cam is rigidly connected to the feeler shaft, this cam causes the gripper to be opened and closed through the rotation of the shaft 9 brought about by the cam 8. Since, however, the feelers 4 have to fall with their feeling surface slightly into the cylinder, that is, have to close

more than the gripper does, there is a small space between the cams 17 and the gripper 1. This space can be adjusted by means of a set screw on the gripper 1.

What I claim is:—

1. An offset printing machine in which each sheet fed from a stack of paper to the impression cylinder is seized by a gripping mechanism disposed on the impression cylinder, comprising a feeler mechanism adapted to separate the impression and transfer cylinders if the gripping mechanism fails to seize a sheet, and means whereby the feeler mechanism positively controls the gripping mechanism.

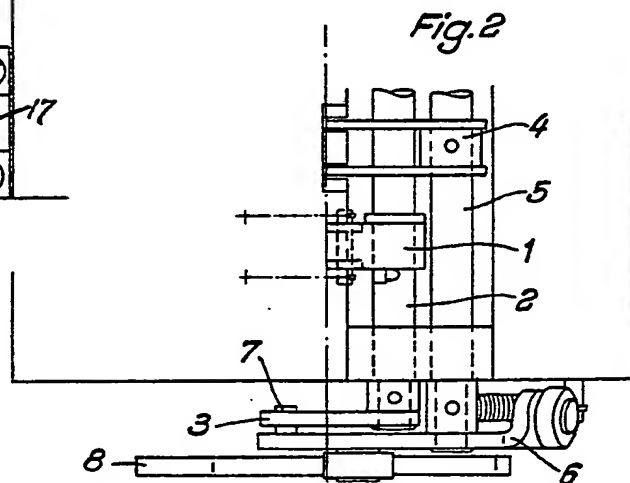
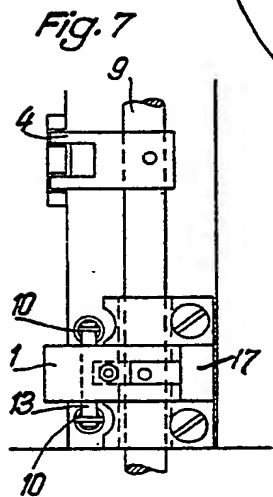
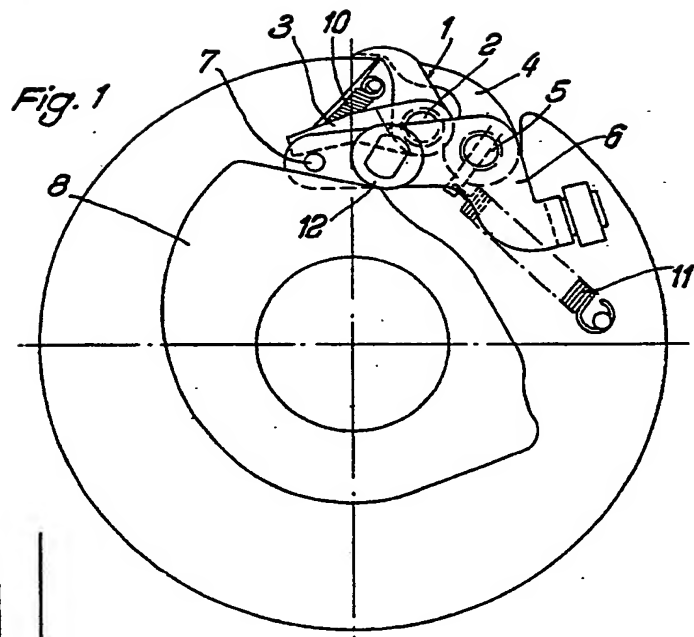
2. An offset printing machine in which each sheet fed from a stack of paper to the impression cylinder is seized by a gripping mechanism disposed on the impression cylinder, the operative action of a feeler mechanism being checked by the sheet that has been seized by the gripper, characterized in that the feeler mechanism comprises feeler fingers, a feeler shaft, and a feeler lever, and the gripping mechanism comprises a gripper and a gripper shaft, said feeler lever having means for opening the gripping mechanism to receive a sheet when the feeler fingers open, and release the gripping mechanism for seizing a sheet when the feeler fingers close.

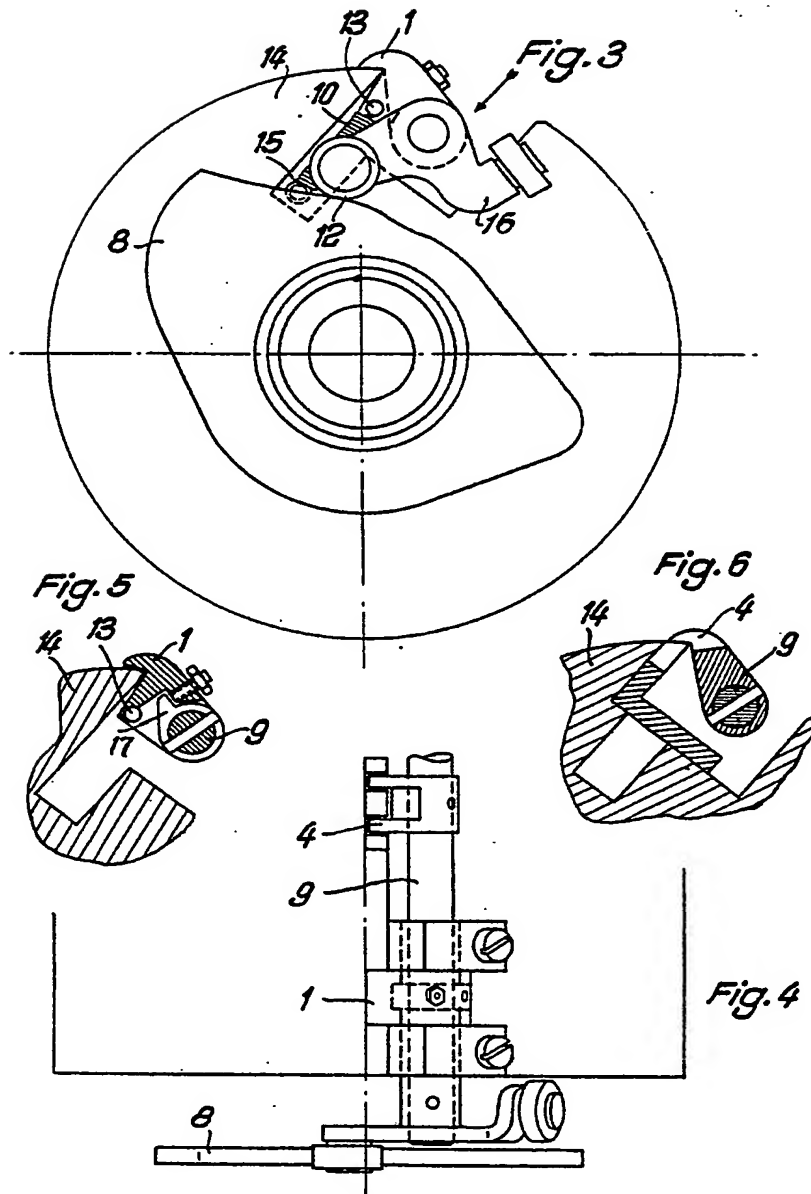
3. An offset printing machine as claimed in claim 2 in which the feeler fingers and the gripper are mounted on separate shafts, characterized in that the gripper shaft carries a lever which is engaged by the feeler actuating mechanism comprising the feeler lever and a feeler cam through the intermediary of a pin.

4. An offset printing machine as claimed in claim 2, characterized in that the feeler fingers and the gripper are mounted on a common shaft, the gripper being loose on said shaft and capable of being pivoted into gripping position by the action of a spring, the feeler fingers being secured to said shaft.

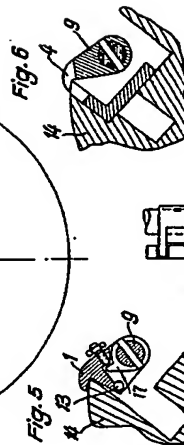
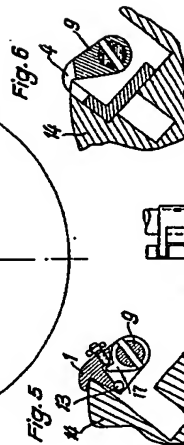
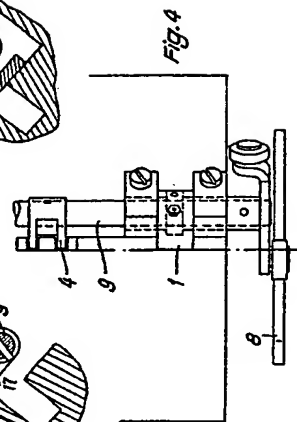
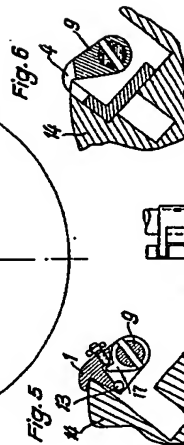
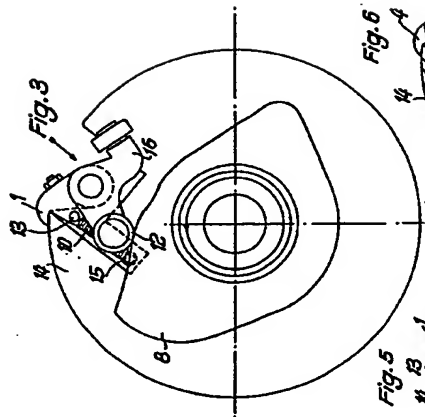
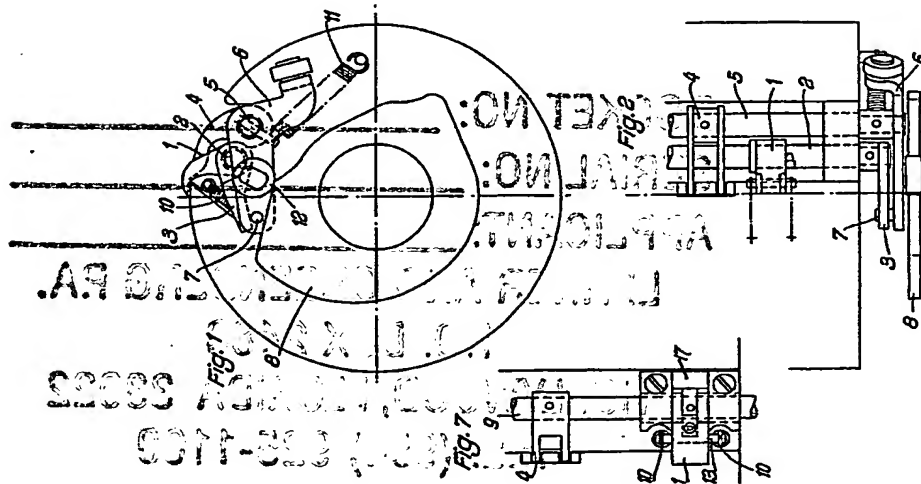
5. An offset printing machine substantially as hereinbefore described and illustrated in Figs. 1 and 2 or 3 to 7 of the accompanying drawings.

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& ROLLINSON,  
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791,911 COMPLETE SPECIFICATION  
 2 SHEETS  
 This drawing is a reproduction of  
 the Original on a reduced scale.  
 SHEETS 1 & 2



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